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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,308	09/27/2004	Toru Abiko	09792909-5980	5417

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EXAMINER	
HEYI, HENOK G	

ART UNIT	PAPER NUMBER
2627	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/509,308	ABIKO ET AL.	
	Examiner	Art Unit	
	HENOK G. HEYI	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 June 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 06/15/2009 have been fully considered but they are not persuasive. Contrary to applicant's assertion the limitation that states first and second upper dielectric layers and first and second lower dielectric layers, as recited in independent claims 1 and 14 have been given weight but the reference used teaches those limitations. Hwang teaches four dielectric layers on para [0061].

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Katoh was referenced because it teaches the kind of material the dielectric layer is made of just like

disclosed in applicant's specification (para [0095]). Kato teaches on para [0100] many different compounds that could be used to form dielectric layers either used individually or in combination – and this teaching motivates one skilled in the art to make multiple dielectric layers if needed.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3-14, and 16-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katoh et al. US 2003/0044719 A1 (Katoh hereinafter) in view of Hwang et al. US 2003/0161988 A1 (Hwang hereinafter).

Regarding claims 1 and 14, Katoh teaches an optical recording medium (Fig. 1) comprising at least a reflective layer (5), a lower dielectrics layer (2), a recording layer (3), an upper dielectrics layer (4) and that are sequentially laminated on one main surface of a substrate, wherein thereby an information signal is recorded and reproduced, the lower dielectrics layer includes a first lower dielectrics layer and a second lower dielectrics layer *that* inhibits a material *that* constitutes the first lower dielectrics layer and a material that constitutes the reflective layer from reacting; and the upper dielectrics layer includes a first upper dielectrics layer and a second

upper dielectrics layer that inhibits a material that constitutes the first upper dielectrics layer and a material that constitutes the light transmissive layer from reacting (para [0100]) but Katoh fails to teach explicitly a light transmissive layer and light having a wavelength in the range of 400 nm or more and 410 nm or less is focused with an optical system having a numeral aperture in the range of 0.84 or more and 0.86 or less followed by irradiating from a side of the light transmissive layer on the recording layer. However, Hwang teaches a light transmitting layer (Fig. 2) transmitting a laser beam of 400nm wavelength and an objective lens having a high numeric aperture NA of about 0.85, para [0011]).

It would have been obvious for one skilled in the art at the time the invention was made to modify the optical recording medium of Katoh to include a light transmitting layer and a laser beam in the suggested wavelength range. The modification would have been obvious because of the benefit of SiaN4 in preventing chemical reaction of the first compounds of the dielectric layers with the recording layer.

Regarding claims 3 and 16, Katoh teaches that the optical recording medium according to claim 1, wherein the first lower dielectrics layer is made of a mixture of zinc sulfide and silicon oxide and the second lower dielectrics layer is made of silicon nitride (see para [0100] and [0101]).

Regarding claims 4 and 17, Katoh teaches the optical recording medium according to claim 1, wherein the first upper dielectrics layer is made of a mixture of zinc

sulfide and silicon oxide and the second upper dielectrics layer is made of silicon nitride (see para [0100] and [0101]).

Regarding claims 5 and 18, Katoh teaches the optical recording medium according to claim 1, wherein the recording layer is a phase change recording layer (see para [0090]).

Regarding claims 6 and 19, Katoh teaches the optical recording medium according to claim 5, wherein the phase change recording layer is made of a SbTe base alloy and the reflective layer is made of a Ag base alloy (see Abstract).

Regarding claims 7 and 20, Katoh teaches the optical recording medium according to claim 6, wherein the SbTe base alloy includes Ge, Sb and Te, and the Ag base alloy includes Ag, Nd and Cu (see para [0045] and [0119]).

Regarding claims 8 and 22, Katoh teaches the optical recording medium according to claim 7, wherein in the phase change recording layer, a content of Ge is 2 atomic percent or more and 8 atomic percent or less, and a ratio of Sb to Te is 3.4 times or more and 4.0 times or less (see para [0110] to [0114]), and in the reflective layer a content of Nd is 0.4 atomic percent or more and 0.7 atomic percent or less and a content of Cu is 0.6 atomic percent or more and 0.9 atomic percent or less (see para [0119]).

Regarding claims 9, 21 and 22, Katoh teaches, The optical recording medium according to claim 7, wherein in the phase change recording layer, a content of Ge is 2 atomic percent or more and 8 atomic percent or less, and a ratio of Sb to Te is 4.2 times

or more and 4.8 times or less (see para [0110] to [0114]), and in the reflective layer a content of Nd is 0.4 atomic percent or more and 0.7 atomic percent or less and a content of Cu is 0.6 atomic percent or more and 0.9 atomic percent or less(see para [0119]).

Regarding claims 10 and 23, Katoh teaches the optical recording medium according to claim 1, wherein a thickness of the reflective layer is 80 nm or more and 140 nm or less (the reflective/heat dissipating layer was formed having a thickness of 140nm, para [0252]); a thickness of the second lower dielectrics layer is 8 nm or more and 14 nm or less; a thickness of the first lower dielectrics layer is 4 nm or more and 10 nm or less (the lower dielectric layer preferably have a thickness ranging from 10nm to 5000nm, para [0103]); a thickness of the recording layer is 8 nm or more and 16 nm or less (the resultant recording layers each have the thickness ranging from 13nm to 17nm, para [0254]); a thickness of the first upper dielectrics layer is 4 nm or more and 12 nm or less; and a thickness of the second upper dielectrics layer is 36 nm or more and 46 nm or less (the upper dielectric layer was formed in a similar manner to the lower dielectric layer, and its thickness was found as 30nm, para [0304]).

Regarding claims 11 and 24, Katoh teaches the optical recording medium according to claim 1, wherein the light transmissive layer includes a light transmissive sheet and an adhesive layer for adhering the light transmissive sheet to a substrate (may be adhered with two overcoat layers, which may be covered by a resin layer, para [0127]).

Regarding claims 12 and 25, Katoh teaches the optical recording medium according to claim 11, wherein the adhesive layer is made of a pressure sensitive adhesive (may be adhered with two overcoat layers, which may be covered by a resin layer, para [0127]).

Regarding claims 13 and 26, Katoh teaches the optical recording medium according to claim 11, wherein the adhesive layer is made of a UV-curable resin (may be adhered with two overcoat layers, which may be covered by a resin layer, para [0127]).

4. Claims 2 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang and Katoh as applied to claim1 above, and further in view of Foote US 6,218,292 B1 (Foote hereinafter).

Regarding claim 2 and 15, Hwang and Katoh teach the optical recording medium according to claim 1, but the combined teaching of both Hwang and Katoh failed to teach that extinction coefficients k of materials that constitute the upper dielectrics layer and the lower dielectrics layer satisfy relationship of 0 k 3. However, Foote teaches that the optical recording medium according to claim 1, wherein extinction coefficients k of materials that constitute the upper dielectrics layer and the lower dielectrics layer satisfy relationship of 0 k 3 (extinction coefficient, k = 1 col 3 lines 59-66).

It would have been obvious for one skilled in the art at the time the invention was made to modify the dielectric layers so that the extinction coefficient would be in a specified range. The modification would have been obvious because of the benefit of a controlled

extinction coefficient with respect to reflection and light interference as taught by Foote (col 6 lines 7-52).

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENOK G. HEYI whose telephone number is (571)270-1816. The examiner can normally be reached on Monday to Friday 8:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph H. Feild/
Supervisory Patent Examiner, Art Unit 2627

/Henok G Heyi/
Examiner, Art Unit 2627